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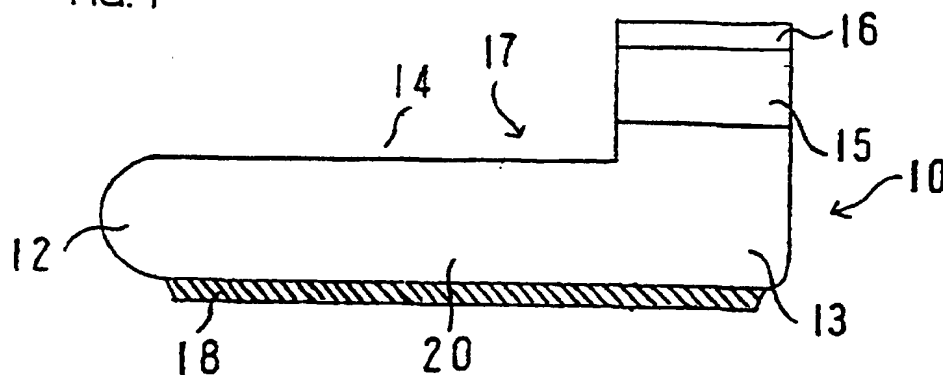
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(54) SURFING FOOTWEAR AND FLIPPER

(57) A surfing footwear comprising a knitted body (17) having a calf part (16), an ankle part (15) and a foot part (14) integrally knitted together, a rubber member (18) attached to the lower side of the foot part, and means (19) for closely attaching and/or holding the knitted body (17) to a bare foot, wherein the knitted body is

made using a hosiery machine and the means (19) for closely attaching and/or holding are provided, for example, on the ankle part (15) and the intermediate part (20), excluding the toe part and the heel part, of the foot part and knitted with elastic fibers.

FIG. 1



EP 1 033 086 A1

Description

TECHNICAL FIELD

[0001] The present invention relates to a surfing footwear for a surfer to wear when wearing flippers or when riding on a surfing board. Furthermore, the invention relates to a flipper having the surfing footwear as an under-sock.

BACKGROUND ART

[0002] People who surf generally wear integral watertight suits whose foot portions have, in their bottoms, rubber portions for preventing slippage. Therefore, if a person who surfs in a summer season wears such a suit for a long time, the person's feet become considerably damp due to heat, so that the feet or foot may peel and, moreover, athlete's foot may be caused.

[0003] Furthermore, although the suit has slip-preventative rubber portions in the bottoms of the foot portions, the suit is not made on sufficient consideration of tight fitting between the foot portions and bare feet. Therefore, when a surfer wears flippers, the tight fitting between the surfer's bare feet and the flippers is insufficient. As a result, it is often the case that surfers cannot move the flippers as they intend.

[0004] The present invention has been accomplished to solve the aforementioned drawbacks. It is an object of the invention to provide a surfing footwear that allows a surfer to move the footwear as the surfer intends as if the footwear were a part of the surfer's own foot when the surfer wears a flipper or rides on a surfing board. It is another object of the invention to provide a flipper that has an under-sock that is useful when a surfer wears the flipper body. Therefore, when a surfer wears such flippers, a state in which the flippers and the surfer's bare feet are tightly fitted can always be maintained, so that the surfer can sufficiently cope even with strong waves. Hence, the surfer can stay out in the sea for a long time.

DISCLOSURE OF THE INVENTION

[0005] A surfing footwear according to the invention comprises a knitted body formed by integrally knitting a calf portion, an ankle portion and a foot portion, and an anti-slip member attached to an undersurface of the foot portion of the knitted body, wherein tight fitting between the knitted body and a bare foot can always be obtained.

[0006] A surfing footwear according to the invention comprises a knitted body formed by integrally knitting a calf portion, an ankle portion and a foot portion, an elastic member attached to an undersurface of the foot portion of the knitted body, and tight-fitting and/or retaining means for tightly fitting and/or retaining a foot to the knitted body.

[0007] A surfing footwear according to the invention is characterized in that the elastic fiber yarn is knitted with a looped base fiber yarn by a tuck-in or a lay-in.

[0008] A surfing footwear according to the invention is characterized in that a number of the elastic fiber yarn is one.

[0009] A surfing footwear according to the invention is characterized in that the tight-fitting and/or retaining means is provided in the calf portion, the ankle portion, and an intermediate portion of the foot portion excluding a toe portion and a heel portion.

[0010] A surfing footwear according to the invention is characterized in that the tight-fitting and/or retaining means is provided in the ankle portion, and an intermediate portion of the foot portion excluding a toe portion and a heel portion.

[0011] A surfing footwear according to the invention is characterized in that the tight-fitting and/or retaining means is provided in the ankle portion and the foot portion.

[0012] A surfing footwear according to the invention is characterized in that the tight-fitting and/or retaining means is provided in the ankle portion.

[0013] A surfing footwear according to the invention is characterized in that the tight-fitting and/or retaining means is provided in the foot portion.

[0014] A surfing footwear according to the invention is characterized in that the tight-fitting and/or retaining means is provided in an intermediate portion of the foot portion excluding a toe portion and a heel portion.

[0015] A surfing footwear according to the invention is characterized in that the tight-fitting and/or retaining means is provided entirely in the knitted body.

[0016] A surfing footwear according to the invention is characterized in that the tight-fitting and/or retaining means is provided at a reduced knitting interval of the elastic fiber yarn in a portion near an upper end and/or in a portion near a lower end.

[0017] A surfing footwear according to the invention is characterized in that the knitted body is made by a knitter for a sock.

[0018] A surfing flipper according to the invention comprises, as an under-sock, a footwear having a knitted body formed by integrally knitting a calf portion, an ankle portion and a foot portion, and an anti-slip member attached to an undersurface of the foot portion of the knitted body.

[0019] A surfing flipper according to the invention comprises, as an under-sock, a footwear having a knitted body formed by integrally knitting a calf portion, an ankle portion and a foot portion, an elastic member attached to an undersurface of the foot portion of the knitted body, and tight-fitting and/or retaining means for tightly fitting and/or retaining a foot to the knitted body.

[0020] A surfing footwear according to the invention is made by using a knitted body that conforms to a bare foot and that can be worn directly on a bare foot and by attaching a rubber member to an undersurface of a foot

portion of the knitted body. Therefore, since the footwear conforms to a bare foot, the footwear does not discomfort the surfer.

[0021] A surfing footwear according to the invention comprises a knitted body formed by integrally knitting a calf portion, an ankle portion and a foot portion, a rubber member attached to an undersurface of the foot portion, and tight-fitting and/or retaining means for tightly fitting and/or retaining a foot to the knitted body. The knitted body is made by a knitter for socks. Therefore, the footwear is easy to handle, and it is small and light in weight, so that it is easy to carry.

[0022] The tight-fitting and/or retaining means has a construction that serves to always tightly fit the knitted body and a bare foot and/or maintain the tight fitting therebetween. The tight-fitting and/or retaining means is made by knitting an elastic fiber yarn into a knitted body, or it is made by knitting a fiber yarn having a predetermined length. The tight-fitting and/or retaining means is knitted with reduced intervals of an elastic fiber yarn in an up-down direction in a portion near an upper end and/or a portion near a lower end. Therefore, the tight fitting becomes still better.

[0023] Thus, due to the provision of the tight-fitting and/or retaining means in the knitted body, tight fitting to and/or retainment of a bare foot is achieved. Furthermore, a tight-fit state between a bare foot and the rubber body attached to the undersurface of the knitted body is secured. Therefore, the surfing-purpose footwear and the flipper body can be worn as if they were no more than a bare foot.

[0024] Furthermore, it is preferable that the rubber body attached to the undersurface of the knitted body to prevent slippage of a person who wears the footwear have irregularities on its surface. Therefore, slippage between the footwear and the flipper body is more highly prevented.

[0025] The surfing footwear is an under-sock for a surfer to wear when wearing a flipper. The footwear is a sock to wear when riding on a surfing board. The footwear is not limited to a surfing footwear, but may also be applied to a footwear for a beach use. A surfing footwear for a surfer to wear when wearing a flipper is formed by a sock that is made by a sock knitter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026]

FIGURE 1 is a schematic diagram illustrating a surfing footwear according to the invention. FIGURES 2(a), 2(b), 2(c), 2(d), 2(e), 2(f) and 2(g) are schematic diagrams illustrating tight-fitting and/or retaining means arranged in a knitted body.

BEST MODES FOR CARRYING OUT THE INVENTION

[0027] An embodiment of the surfing footwear of the invention will be described in detail hereinafter with reference to the accompanying drawings.

[0028] FIGURE 1 is a schematic diagram illustrating a surfing footwear 10 according to the invention. In the drawing, the surfing footwear 10 has a knitted body 17 that is substantially made up of a foot portion 14 having a toe portion 12 and a heel portion 13, an ankle portion 15, a foot portion 14, and a calf portion 16, and an anti-slip member, for example, a rubber member 18, which is attached to an undersurface of the foot portion 14. The knitted body 17 is formed by knitting a fiber yarn of cotton, nylon, or the like through the use of a knitting machine for socks. The toe portion 12 and the heel portion 13 are knitted with a pile stitch. Therefore, these portions have higher strength than other portions.

[0029] When the rubber member 18 is to be attached to the undersurface of the foot portion of the knitted body, a thermosetting adhesive is applied to the undersurface. After the rubber member 18 is placed on the foot portion 14, the rubber body is heat-pressed to adhere it. It is preferable that the rubber member 18 have irregularities on its surface to prevent slippage. The rubber member 18 may be provided entirely or partially over the surface of the foot portion 14. That is, if the rubber member 18 is provided partially over the foot portion 14, the rubber member 18 is provided as a spaced arrangement with a predetermined interval in a direction of a length of the footwear. In another fashion, the rubber member 18 is provided as a spaced arrangement with a predetermined interval in a direction perpendicular to the direction of the length of the footwear. In still another fashion, the rubber member 18 is provided as a spaced arrangement with predetermined intervals in the direction of the length of footwear and the direction perpendicular to that direction.

[0030] The knitted body further has tight-fitting and/or retaining means. The tight-fitting and/or retaining means of the knitted body is arranged as shown in FIGURES 2(a), (b), (c), (d), (e), (f) and (g). That is, in (a), the tight-fitting and/or retaining means 19 is provided in the calf portion 16, the rubber member 18, and an intermediate portion 20 of the foot portion excluding the toe portion 12 and the heel portion 13. In (b), the tight-fitting and/or retaining means 19 is provided in the ankle portion 15, and an intermediate portion of the foot portion excluding the toe portion 12 and the heel portion 13. In (c), the tight-fitting and/or retaining means 19 is provided in the ankle portion and the foot portion. In (d), the tight-fitting and/or retaining means is provided in the ankle portion. In (e), the tight-fitting and/or retaining means is provided in the foot portion. In (f), the tight-fitting and/or retaining means 19 is provided in an intermediate portion of the foot portion excluding the toe portion 12 and the heel portion 13. In (g), the tight-fitting

and/or retaining means 19 is provided in the entire knitted body. The arrangement of the tight-fitting and/or retaining means 19 is not limited to the aforementioned positions, but may be variously modified.

[0031] The tight-fitting and/or retaining means is formed by bringing an elastic fiber yarn, such as a rubber yarn or the like, through loop forms of a base fiber yarn of cotton, nylon or the like. That is, an elastic fiber, such as a rubber yarn or the like, is knitted by tucking the yarn into looped base fibers. In another fashion, it is knitted by a lay-in in which a rubber yarn is flowed between purl stitches and knit stitches.

[0032] The tight-fitting and/or retaining means may be knitted with reduced intervals of an elastic yarn in a portion near an upper end of the means and/or a portion near a lower end thereof, and may be knitted with increased intervals thereof in other regions. The tight-fitting and/or retaining means may also be knitted from a fiber yarn having a predetermined length, instead of a rubber yarn.

[0033] Next described will be a case where the tight-fitting and/or retaining means is knitted in the ankle portion, and an intermediate portion of the foot portion excluding the toe portion 12 and the heel portion 13.

[0034] Rubber yarns are knitted by progressively tucking or laying them in each row of a base fiber continuously from an upper end to a lower end in the ankle portion and a portion of the foot portion excluding the toe portion 12 and the heel portion 13. That is, the knitting is performed continuously without cutting the rubber yarns at every stage. To perform such knitting, the knitter is reciprocated. By reciprocating the knitter in this manner, the rubber yarns are progressively knitted in forward and backward courses. Thus, by knitting the elastic yarns with base fiber yarns made of cotton or nylon, tight fitting and/or retainment between the knitted body and a bare foot can be achieved. The number of rubber yarns knitted may also be one.

[0035] Furthermore, a footwear having a knitted body formed by integrally knitting a calf portion, an ankle portion and a foot portion, and an anti-slip member attached to the undersurface of the foot portion of the knitted body is used as an under-sock of a surfing-purpose flipper body.

[0036] Still further, a footwear having a knitted body formed by integrally knitting a calf portion, an ankle portion and a foot portion, an elastic member attached to the undersurface of the foot portion of the knitted body, and the tight-fitting and/or retaining means for tightly fitting or retaining a foot to the knitted body is used as an under-sock of a surfing flipper.

[0037] Thus, the knitted body, which always tightly fits to a bare foot of a surfer when the surfer puts it into the knitted body, has the tight-fitting and/or retaining means. Since the knitted body has the tight-fitting and/or retaining means in this manner, the tight fitting between the footwear and the surfing flipper is good. Therefore, the surfer can surf as much as the surfer

desires, for a long time.

[0038] Furthermore, even if the footwear is exposed to sea water for a long time, the knitted body does not fall apart. Therefore, the surfer can surf without keeping in mind that the surfer wears the footwear. Even when the surfer walks on a beach, the knitted body does not fall apart. Still further, the shape of the knitted body does not change even if the footwear is repeatedly washed, so that the footwear can be worn many times. Therefore, the tight fitting is always secured, and excellent wear comfort is always obtained.

[0039] The footwear is applicable to a case where once a surfer puts it on, the surfer even walks in it on a beach without taking it off. Therefore, the footwear eliminates the inconvenience of putting it on and taking it off depending on individual purposes. Furthermore, the footwear always maintains a tight fit to a bare foot even in sea water, or during surfing, or after being washed.

20 INDUSTRIAL APPLICABILITY

[0040] The surfing footwear of the invention is a surfing footwear for a surfer to wear when surfing with flippers, or when riding on a surfing board. The footwear is also an under-sock to be used when a flipper is worn. Furthermore, the footwear can also be used as a substitute for beach sandals during a walk on a beach. Still further, the footwear can be used as a substitute for ordinary socks. Further, the footwear can be used as socks for mountaineering.

Claims

1. A surfing footwear comprising a knitted body formed by integrally knitting a calf portion, an ankle portion, and a foot portion and an anti-slip member attached to an undersurface of the foot portion of the knitted body, wherein tight fitting between the knitted body and a bare foot can always be obtained.
2. A surfing footwear comprising a knitted body formed by integrally knitting a calf portion, an ankle portion and a foot portion, an elastic member attached to an undersurface of the foot portion of the knitted body, and tight-fitting and/or retaining means for tightly fitting and/or retaining a foot to the knitted body.
3. A surfing footwear according to claim 2, characterized in that the elastic fiber yarn is knitted with a looped base fiber yarn by a tuck-in or a lay-in.
4. A surfing footwear according to claim 3, characterized in that a number of the elastic fiber yarn is one.
5. A surfing footwear according to claim 2, characterized in that the tight-fitting and/or retaining means is

provided in the calf portion, the ankle portion, and an intermediate portion of the foot portion excluding a toe portion and a heel portion.

6. A surfing footwear according to claim 2, characterized in that the tight-fitting and/or retaining means is provided in the ankle portion, and an intermediate portion of the foot portion excluding a toe portion and a heel portion. 5
7. A surfing footwear according to claim 2, characterized in that the tight-fitting and/or retaining means is provided in the ankle portion and the foot portion. 10
8. A surfing footwear according to claim 2, characterized in that the tight-fitting and/or retaining means is provided in the ankle portion. 15
9. A surfing footwear according to claim 2, characterized in that the tight-fitting and/or retaining means is provided in the foot portion. 20
10. A surfing footwear according to claim 2, characterized in that the tight-fitting and/or retaining means is provided in an intermediate portion of the foot portion excluding a toe portion and a heel portion. 25
11. A surfing footwear according to claim 2, characterized in that the tight-fitting and/or retaining means is provided entirely in the knitted body. 30
12. A surfing footwear according to claim 5, 6, 7, 8, 9, 10 or 11, characterized in that the tight-fitting and/or retaining means is provided at a reduced knitting interval of the elastic fiber yarn in a portion near an upper end and/or in a portion near a lower end. 35
13. A surfing footwear according to claim 1 or 2, characterized in that the knitted body is made by a knitter for a sock. 40
14. A surfing flipper comprising, as an under-sock, a footwear having a knitted body formed by integrally knitting a calf portion, an ankle portion and a foot portion, and an anti-slip member attached to an undersurface of the foot portion of the knitted body. 45
15. A surfing flipper comprising, as an under-sock, a footwear having a knitted body formed by integrally knitting a calf portion, an ankle portion and a foot portion, an elastic member attached to an undersurface of the foot portion of the knitted body, and tight-fitting and/or retaining means for tightly fitting and/or retaining a foot to the knitted body. 50

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FIG. 1

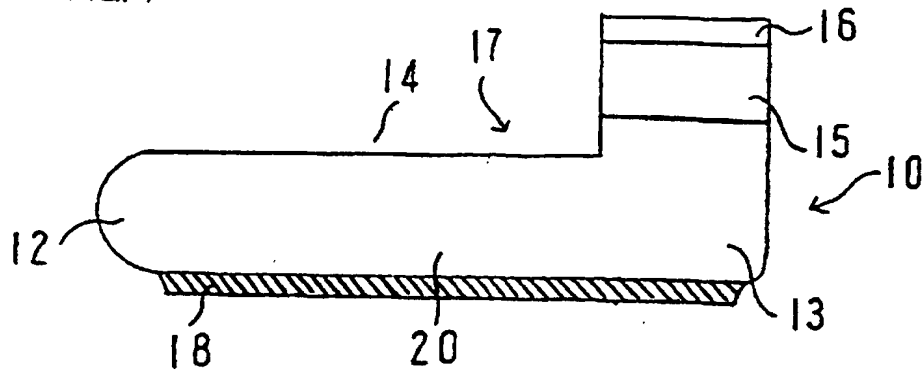
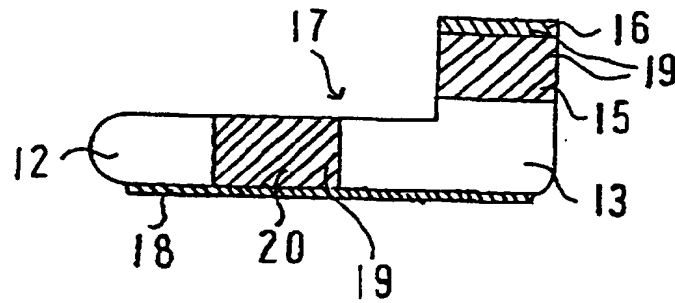
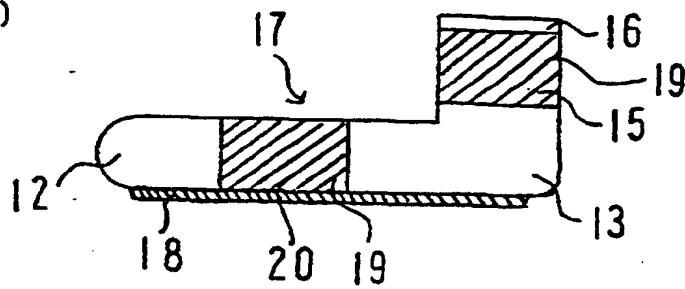


FIG. 2

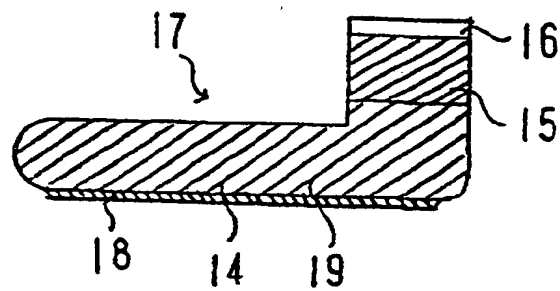
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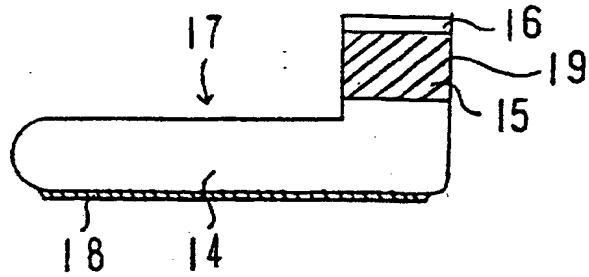
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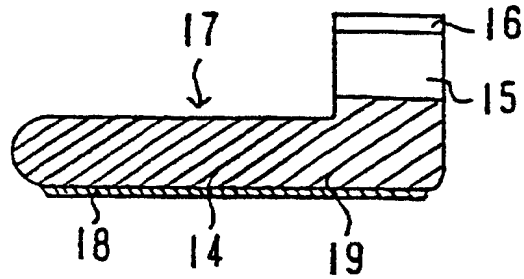
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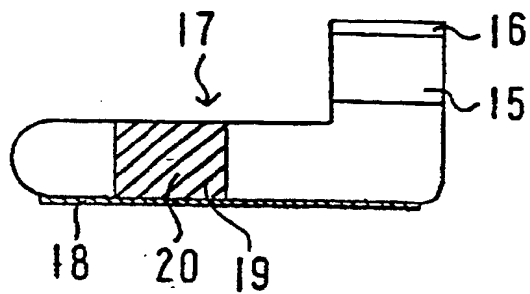
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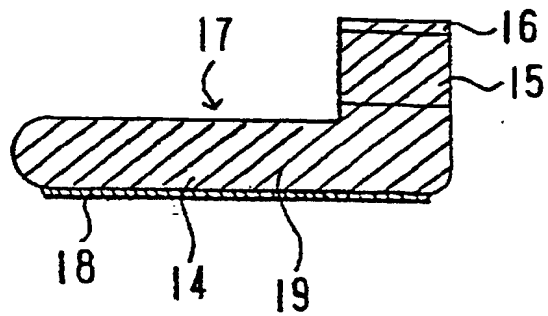
(e)



(f)



(g)



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP99/02586

| A. CLASSIFICATION OF SUBJECT MATTER Int.Cl ⁶ A43B5/08, A41D11/00 | | |
|--|---|--|
| According to International Patent Classification (IPC) or to both national classification and IPC | | |
| B. FIELDS SEARCHED | | |
| Minimum documentation searched (classification system followed by classification symbols) Int.Cl ⁶ A43B5/08, A41D11/00 | | |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Jitsuyo Shinan Koho 1926-1996 Toroku Jitsuyo Shinan Koho 1994-1999 Kokai Jitsuyo Shinan Koho 1971-1999 Jitsuyo Shinan Toroku Koho 1996-1999 | | |
| Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) | | |
| C. DOCUMENTS CONSIDERED TO BE RELEVANT | | |
| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| X | Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 58-40265 (Laid-open No. 59-145806) (Yuuya Kida), 29 September, 1984 (29. 09. 84), Pages 1 to 4 ; Figs. 1 to 3 (Family: none) | 1, 2, 9, 11 |
| A | Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 58-40265 (Laid-open No. 59-145806) (Yuuya Kida), 29 September, 1984 (29. 09. 84), Pages 1 to 4 ; Figs. 1 to 3 (Family: none) | 3, 4 |
| Y | Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 58-40265 (Laid-open No. 59-145806) (Yuuya Kida), 29 September, 1984 (29. 09. 84), Pages 1 to 4 ; Figs. 1 to 3 (Family: none) | 5-8, 10, 12-15 |
| Y | JP, 10-251902, A (Ishikawa Meriyasu Yuugen Kaisha), 22 September, 1998 (22. 09. 98), Pages 2, 3 ; Fig. 1 (Family: none) | 5-8, 10, 12, 13 |
| <input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex. | | |
| <p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p> | | |
| Date of the actual completion of the international search 13 July, 1999 (13. 07. 99) | | Date of mailing of the international search report 21 July, 1999 (21. 07. 99) |
| Name and mailing address of the ISA/ Japanese Patent Office | | Authorized officer |
| Facsimile No. | | Telephone No. |

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP99/02586

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|---|-----------------------|
| Y | Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 48-56989 (Laid-open No. 50-3749) (Howa Sangyo K.K.), 16 January, 1975 (16. 01. 75), Pages 1 to 4 ; Figs. 1 to 3 (Family: none) | 14, 15 |

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